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EXAMINER	
PASIA, REDENTOR M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/671,204	WISE ET AL.	
	Examiner	Art Unit	
	Redentor M. Pasia	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 23 and 27 recite the limitation "computer-readable medium" in line 29, page 15 and line 20, page 16. There is insufficient antecedent basis for this limitation in the specification.

Claim Objections

Claims 1-16, and 23-30 are objected to because of the following informalities:

The above claims are written in a narrative format. Such format should be avoided. Corrections should be made similar to the ones suggested below:

As to claims 1, 23, "*a link receiver providing a plurality of data credits to a link transmitter*", should be changed to "*providing from a link receiver, a plurality of data credits to a link transmitter.*"

As to claim 1, "*the link transmitter transmitting a packet to the link receiver on an ingress link,*" should be changed to, "*transmitting a packet from the link transmitter, to the link receiver on an ingress link.*"

As to claims 1, 9, 13, 23, 27, "*the link receiver storing the packet in a plurality of receive buffers,*" should be changed to, "*storing the packet in a plurality of receive buffers at the link receiver.*"

As to claims 1, 9, 13, 23, 27, *"the link receiver transmitting the packet out of the plurality of receiver buffers on a egress link,"* should be changed to *"transmitting the packet out of the plurality of receiver buffers from the link receiver on a egress link."*

As to claim 1, "*the link receiver transmitting a flow control packet to the link transmitter,*" should be changed to "*transmitting a flow control packet from the link receiver to the link transmitter.*"

As to claims 9, 13, 23, 27, "*a link transmitter transmitting a packet to the link receiver on an ingress link,*" should be changed to, "*transmitting a packet from a link transmitter, to the link receiver on an ingress link.*"

Since claims 2-8 are dependent on claim 1, they are also objected to for the same reasons.

Since claims 10-12 are dependent on claim 9, they are also objected to for the same reasons.

Since claims 14-16 are dependent on claim 13, they are also objected to for the same reasons.

Since claims 24-26 are dependent on claim 23, they are also objected to for the same reasons.

Since claims 28-30 are dependent on claim 27, they are also objected to for the same reasons.

Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1, 5-12, and 23-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims1-2, 5-9, 14-17 and 19-21 of copending Application No. 10/671203. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

As to claim 1 of the application, claim 2 (dependent to claim 1) of the co-pending application shows a link receiver providing a plurality of data credits to a link transmitter (claim 1); the link transmitter transmitting a packet to the link receiver on an ingress link (claim1); the link receiver storing the packet in a plurality of receiver buffers (claim 1); the link receiver transmitting the packet out of the plurality of receiver buffers on a egress link (claim 2 dependent on claim 1); placing the plurality of receiver buffers into a free buffer pool as the packet is transmitting out of the plurality of receiver buffers, wherein the free buffer pool corresponds to additional data credits (claim 2 dependent on claim 1); and the link receiver transmitting a flow control packet to the link transmitter, wherein the flow control packet comprises the additional data credits (claim 1). However, claim 2 (dependent on claim 1) does not explicitly show a step of diminishing the plurality of data credits as the packet is transmitted. Claim 1 of the co-pending application shows the step of link receiver updating the free buffer pool. It is

obvious to one of ordinary skill in the art at the time of the invention that updating the free buffer pool means that either there is additional space in the free buffer pool (when packet is transmitted out of the receive buffers onto the network) or less space in the buffer pool (when packet enter the receive buffers).

As to claim 5 of the application, claim 5 (in view of claim 1 and 2) of the co-pending application shows the link transmitter has a plurality of logical channels, and wherein the link transmitter selects to which of the plurality of logical channels to allocate the additional data credits.

As to claim 6 of the application, claim 6 (in view of claim 1 and 2) of the co-pending application shows the link transmitter has a plurality of logical channels, and wherein the link receiver selects to which of the plurality of logical channels to allocate the additional data credits.

As to claim 7 of the application, claim 7 (in view of claim 1 and 2) of the co-pending application shows the link transmitter and the link receiver operate in a switch fabric network

As to claim 8 of the application, claim 8 (in view of claim 1 and 2) of the co-pending application shows the switch fabric network is one of an Infiniband network and a Serial RapidIO network.

As to claim 9 of the application, refer to claim 1 rejection.

As to claim 10 of the application, claim 4 (in view of claim 1 and 2) of the co-pending application shows the packet begins transmitting out of the plurality of receiver buffers when one of the plurality of receiver buffers is empty.

As to claim 11 of the application, refer to claim 5 rejection.

As to claim 12 of the application, refer to claim 6 rejection.

As to claim 23 of the application, claim 17 (dependent from claim 16) of the co-pending application, shows a computer-readable medium containing computer instructions for instructing a processor to perform a method of early buffer return, the instructions comprising: a link transmitter transmitting a packet to a link receiver on an ingress link (claim 16); the link receiver storing the packet in a plurality of receiver buffers claim 16); the link receiver transmitting the packet out of the plurality of receiver buffers on a egress link (claim 17 dependent from claim 16); and placing the plurality of receiver buffers into a free buffer pool when the packet begins transmitting out of the plurality of receiver buffers, wherein the free buffer pool corresponds to additional data credits (claim 17 dependent from claim 16). However, claim 17 (dependent on claim 16) does not explicitly show a step of diminishing the plurality of data credits as the packet

is transmitted. Claim 23 of the co-pending application shows the step of link receiver updating the free buffer pool. It is obvious to one of ordinary skill in the art at the time of the invention that updating the free buffer pool means that either there is additional space in the free buffer pool (when packet is transmitted out of the receive buffers onto the network) or less space in the buffer pool (when packet enter the receive buffers).

As to claim 24 of the application, claim 19 of co-pending application shows the packet begins transmitting out of the plurality of receiver buffers when one of the plurality of receiver buffers is empty.

As to claim 25 of the application, claim 19 of co-pending application shows the link transmitter has a plurality of logical channels, and wherein the link transmitter selects to which of the plurality of logical channels to allocate the additional data credits.

As to claim 26 of the application, claim 19 of co-pending application shows the link transmitter has a plurality of logical channels, and wherein the link receiver selects to which of the plurality of logical channels to allocate the additional data credits.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 4, 14, 23-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4, 14 and 28, the phrase "substantially" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

As to claims 24-26 and 28-30, since they depend on claims 23 and 27, respectively, they are also rejected for the same reasons.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 23-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter on the basis of nonfunctional descriptive material.

Claim 23-30 recites, "*a computer-readable medium containing computer instructions*".

In claims 23 and 27, "computer instructions" is computer program claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs (i.e. computer instructions) do not define any structural and functional interrelationships between the computer program (i.e. computer instructions) and other claimed elements of a computer, which permit the computer program's functionality to be realized. Thus, the claim is non-statuary.

The examiner suggests that claims should be revised to a format similar to "*a computer-readable medium encoded with a computer executable instructions...*" to make the claimed invention statutory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 7-9, 17, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloch et al. (US 6,922,408 B2; hereinafter Bloch) in view of Forin (US 6,594,701 B1; hereinafter Forin).

As to claims 1 and 9, Bloch shows the steps of providing from a link receiver a plurality of data credits to a link transmitter (col. 7, lines 18-21; shows that the receiver updates the available credits and when possible, provides additional credits to the transmitter.); transmitting from the link transmitter a packet to the link receiver on an ingress link (col. 4, lines 58-63; shows switch 20 in a packet switching fabric. The packet switching fabric comprises an Infiniband (IB) fabric. At col. 1, lines 38-40, it shows that the switch port at each end of each physical link includes a transmitter and a receiver for sending packets to and receiving packets from the corresponding port at the other end of the link.); diminishing the plurality of data credits (at the link transmitter – as

to claim 8) as the packet is transmitted (Figure 4; col. 7, lines 15-23; shows a response of the receiver (port 24) to data packet received from transmitter (entity 27) wherein the response involves a process by which the receiver updates the available credits and when possible, provides additional credits to the transmitter. The process takes place whenever port 24 receives a new packet. Also at col. 1, lines 40-45, Bloch shows that the receiver provides the transmitter with credit limits indicating the total amount of data that the transmitter has been authorized to send. The transmitter is not permitted to send anymore data if the credit limit has been exhausted (diminished).); storing at the link receiver, the packet in a receiver buffer (col. 3, lines 27-29; shows a step of receiving the data in the receive buffer responsive to the allocated credits.); transmitting from the link receiver the packet out of the receiver buffer on a egress link (col. 3, lines 30-31; shows the step of passing the data from the receive buffer for onward transmission through the network. At col. 8, lines 13-21, Figure 1; shows the method (figure 5 flowchart) is invoked whenever port 24 passes a packet from queue 28 to switching core 22 for onward transmission.); placing the receiver buffer into a free buffer pool as the packet is transmitting out of the receiver buffer, wherein the free buffer pool corresponds to additional data credits (Based from the specification of the application (Wise) at Par. 0033, it shows that free buffer pool represents the empty portion of the receiver buffer. Therefore, the examiner interprets this limitation as resetting the receive buffer space that was used by the packet back to being an empty/unused part of the receive buffer. This interpretation is also applied to the remainder of the office action. Bloch shows at Figure 5, a flow chart that illustrates a method of reallocation of

credits in receive queues 28 after a data packet has passed out of buffer 25. At col. 8, lines 22- 51, shows the different scenarios of credit (of buffer space) reallocation when the packet was passed out of the buffer.); and the link receiver transmitting a flow control packet to the link transmitter, wherein the flow control packet comprises the additional data credits (col. 1, lines 43-47; show that the transmitter receives a flow control packet from the receiver indicating that additional credit is available.). However, Bloch does not explicitly show a plurality of receive buffers. It would have been obvious to one of ordinary skill in the art at the time of the invention to use multiple receive buffers since implementing this does not change the functionality of Bloch's invention.

Forin shows a plurality of receiver buffers (Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the network device of Bloch by having the receiver buffers of Forin in order to accommodate more packets transmitting from transmitter to the receiver.

As to claim 7, Bloch in view of Forin, shows that the link transmitter and the link receiver operate in a switch fabric network (col. 4, lines 58-60).

As to claim 8, Bloch in view of Forin, shows that the switch fabric is an Inifiniband network (col. 4, lines 58-63).

As to claim 17, Bloch shows a switch (Figure 1, Switch 22), comprising: a receiver buffer coupled to receive a packet from a link transmitter, wherein the packet is stored in a receiver buffer and wherein the switch transmits the packet out of the plurality of receiver buffers (col. 5, lines 7-9; Figure 1; shows Port 24 (receiver) and entity 27 (transmitter) are configured to communicate over a plurality of logical links all of which are carried over physical link 29. At col. 2, lines 15-25, Bloch shows that the receiver has a buffer where it holds data packets that it has receive over the physical link before passing the packets through the switch to another of the ports for further transmission through the fabric and also, that the transmitter transmits packets over a given logical link.); a free buffer pool (col. 6, lines 31-33); and a link receiver flow control algorithm, wherein the link receiver flow control algorithm places the plurality of receiver buffers into the free buffer pool as the packet is transmitting out of the plurality of receiver buffers (Bloch shows at Figure 5, a flow chart that illustrates a method of reallocation of credits in receive queues 28 after a data packet has passed out of buffer 25. At col. 8, lines 22- 51, shows the different scenarios of credit (of buffer space) reallocation when the packet was passed out of the buffer.). However, Bloch does not explicitly show a plurality of receive buffers. It would have been obvious to one of ordinary skill in the art at the time of the invention to use multiple receive buffers since implementing this does not change the functionality of Bloch's invention.

Forin shows a plurality of receiver buffers (Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the network device

of Bloch by having the receiver buffers of Forin in order to accommodate more packets transmitting from transmitter to the receiver.

As to claim 21, Bloch in view of Forin shows that the link transmitter and the link receiver operate in a switch fabric network (col. 4, lines 58-60).

As to claim 22, Bloch in view of Forin shows that the switch fabric is an Inifiniband network (col. 4, lines 58-63).

As to claim 23, Bloch shows a computer-readable medium containing computer instructions (col. 5, lines 2-4 shows that entity 27 also comprises a network host.), for instructing a processor to perform a method of early buffer return, the instructions comprising: a link transmitter transmitting a packet to a link receiver on an ingress link; diminishing a plurality of data credits at the link transmitter as the packet is transmitted; the link receiver storing the packet in a plurality of receiver buffers; the link receiver transmitting the packet out of the plurality of receiver buffers on a egress link; and placing the plurality of receiver buffers into a free buffer pool when the packet begins transmitting out of the plurality of receiver buffers, wherein the free buffer pool corresponds to additional data credits (refer to claim 1 rejection).

Claims 2-4, 10, 13-14, 18-20, 24, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloch et al. (US 6,922,408 B2; hereinafter Bloch) in view of Forin (US 6,594,701 B1; hereinafter Forin) in further view of Takase et al. (U.S. 7,023,799 B2; hereinafter Takase).

As to claim 2, Bloch in view of Forin shows all of the elements as to claim 1 above except the ingress link has an ingress link speed, and the egress link has an egress link speed, wherein placing the plurality of receiver buffers into the free buffer pool comprises: if the egress link speed is less than the ingress link speed, placing the plurality of receiver buffers in the free buffer pool after a portion of the packet has been transmitted out of the plurality of receiver buffers, and wherein the portion of the packet is proportional to a ratio of the egress link speed to the ingress link speed; and if the egress link speed is one of greater than and equal to the ingress link speed, placing the plurality of receiver buffers into the free buffer pool when the packet begins transmitting out of the plurality of receiver buffers.

Takase shows the ingress link has an ingress link speed, and the egress link has an egress link speed (Figure 11; input line has a rate of 1Gbps and output line has a rate of 2.4 Gbps.); if the egress link speed is less than the ingress link speed, placing the plurality of receiver buffers in the free buffer pool after a portion of the packet has been transmitted out of the plurality of receiver buffers (Figure 6C, col. 8, lines 15-19; shows that the input rate flows at a rate over the minimum guaranteed bandwidth

(output rate). At col. 8, lines 1-14; Figure 6C, Takase shows that as long as the level of the leaky bucket repeatedly increases and decreases around the threshold as the lower limit, and the input packets are transferred to the output line without causing excessive residence in the packet buffer.); and wherein the portion of the packet is proportional to a ratio of the egress link speed to the ingress link speed (col. 8, lines 1-3; shows that to the leaky bucket each time a packet is read out from the buffer (output queue), "water" of a volume proportional to the packet length is poured. The leaky bucket shown in Figures 6A-6E, shows the relationship between the input speed and the output place.); if the egress link speed is one of greater than and equal to the ingress link speed, placing the plurality of receiver buffers into the free buffer pool when the packet begins transmitting out of the plurality of receiver buffers (Figures 6D-6F; col. 8, lines 27-33; shows that when the level largely drops below the threshold (input rate < output rate), the transmission right is frequently granted to the packet buffer corresponding to the leaky bucket). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the switch of Bloch in view of Forin to utilize the leaky buckets of Takase in order to provide a traffic shaper capable of transferring variable-length packets while guaranteeing the minimum guaranteed bandwidth to each traffic and effectively using an unoccupied bandwidth of a communication line (Takase, col. 2, lines 58-62).

As to claims 3, 10 and 24, Bloch in view of Forin shows all of the elements except the packet begins transmitting out of the plurality of receiver buffers when one of the plurality of receiver buffers is empty

Takase shows at col. 8, lines 34-46, that when the level drops largely below the threshold, and after that, packets flow in a rate over the minimum guaranteed bandwidth of 600 Mbps, during a period until the level reaches the threshold TH600, packets are transmitted to the output line at a rate over the minimum guaranteed bandwidth. A level that is largely below the threshold also covers the lowest level possible (an empty buffer). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the switch of Bloch in view of Forin to utilize the leaky buckets of Takase in order to provide a traffic shaper capable of transferring variable-length packets while guaranteeing the minimum guaranteed bandwidth to each traffic and effectively using an unoccupied bandwidth of a communication line (Takase, col. 2, lines 58-62).

As to claim 4, Bloch in view of Forin shows all of the elements except the portion of the packet are substantially equal to one minus the ratio of the egress link speed to the ingress link speed.

Takase shows at col. 8, lines 1-19 and Figure 6C, that to the leaky bucket, each time a packet is read out from the packet buffer (output queue), "water" of a volume proportional to the packet length is poured. In the case where packets flow in at a rate

over the minimum guaranteed bandwidth of 600 Mbps from the input line, if the packets flow output from the packet buffer is controlled to 600 Mbps, the amount of packets residual in the packet queue increases. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the switch of Bloch in view of Forin to utilize the leaky buckets of Takase in order to provide a traffic shaper capable of transferring variable-length packets while guaranteeing the minimum guaranteed bandwidth to each traffic and effectively using an unoccupied bandwidth of a communication line (Takase, col. 2, lines 58-62).

As to claim 13, Bloch in view of Forin shows a link transmitter transmitting a packet to a link receiver on an ingress link; diminishing a plurality of data credits at the link transmitter as the packet is transmitted; the link receiver storing the packet in a plurality of receiver buffers; the link receiver transmitting the packet out of the plurality of receiver buffers on a egress link (refer to claim 1 rejection.). However, Bloch in view of Forin does not show the steps of placing the plurality of receiver buffers in a free buffer pool after a portion of the packet has been transmitted out of the plurality of receiver buffers, wherein the portion of the packet is proportional to a ratio of an egress link speed to an ingress link speed, and wherein the free buffer pool corresponds to additional data credits.

Takase shows the above claim limitation and the rejection in claim 2 also applies to this claim limitation. It would have been obvious to one of ordinary skill in the art at

the time of the invention to modify the switch of Bloch in view of Forin to utilize the leaky buckets of Takase in order to provide a traffic shaper capable of transferring variable-length packets while guaranteeing the minimum guaranteed bandwidth to each traffic and effectively using an unoccupied bandwidth of a communication line (Takase, col. 2, lines 58-62).

As to claim 14, the same rejection is used as in claim 4.

As to claim 18, Bloch in view of Forin shows that the switch is coupled to receive the packet on an ingress link and the switch is coupled to transmit the packet on an egress link (Figure 1, links connected to receive queue 28. At col. 5, line 38, shows that buffer 25 holds multiple receive queues. At col. 3, lines 28-32, shows that the buffer receives the data and passes the data for onward transmission into the network). However, Bloch does not show that ingress link having an ingress link speed and egress link having an egress link speed, wherein placing the plurality of receiver buffers into the free buffer pool comprises: if the egress link speed is less than the ingress link speed, the plurality of receiver buffers are placed in the free buffer pool after a portion of the packet has been transmitted out of the plurality of receiver buffers, and wherein the portion of the packet is proportional to a ratio of the egress link speed to the ingress link speed; and if the egress link speed is one of greater than and equal to the ingress link

speed, the plurality of receiver buffers are placed into the free buffer pool when the packet begins transmitting out of the plurality of receiver buffers.

Takase shows the above claim limitation and the rejection in claim 2 also applies to this claim limitation. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the switch of Bloch in view of Forin to utilize the leaky buckets of Takase in order to provide a traffic shaper capable of transferring variable-length packets while guaranteeing the minimum guaranteed bandwidth to each traffic and effectively using an unoccupied bandwidth of a communication line (Takase, col. 2, lines 58-62).

As to claim 19, the same rejection is used as in claim 3.

As to claim 20, the same rejection is used as in claim 4.

As to claim 27, Bloch in view of Forin shows a computer-readable medium containing computer instructions for instructing a processor to perform a method of early buffer return, the instructions comprising: a link transmitter transmitting a packet to a link receiver on an ingress link; diminishing a plurality of data credits at the link transmitter as the packet is transmitted; the link receiver storing the packet in a plurality of receiver buffers; the link receiver transmitting the packet out of the plurality of receiver buffers on a egress link (same rejection is used as in claim 1). However, Bloch in view of Forin does not show the steps of placing the plurality of receiver buffers in a free buffer pool

after a portion of the packet has been transmitted out of the plurality of receiver buffers, wherein the portion of the packet is proportional to a ratio of an egress link speed to an ingress link speed, and wherein the free buffer pool corresponds to additional data credits.

Takase shows the claim limitation stated above as shown in the rejection of claim 2. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the switch of Bloch in view of Forin to utilize the leaky buckets of Takase in order to provide a traffic shaper capable of transferring variable-length packets while guaranteeing the minimum guaranteed bandwidth to each traffic and effectively using an unoccupied bandwidth of a communication line (Takase, col. 2, lines 58-62).

As to claim 28, the same rejection is used as in claim 4.

Claims 5-6, 11-12, 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloch et al. (US 6,922,408 B2; hereinafter Bloch) in view of Forin (US 6,594,701 B1; hereinafter Forin) in further view Jones et al. (U.S. 6,944,173; hereinafter Jones).

As to claims 5, 11 and 25, Bloch in view of Forin shows the link transmitter has a plurality of logical channels (col. 5, lines 7-11), However, Bloch in view of Forin does not show that the link transmitter selects to which of the plurality of logical channels to allocate the additional data credits.

Jones shows the link transmitter selects to which of the plurality of logical channels to allocate the additional data credits (col. 2, lines 13-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the network device of Bloch in view of Forin to include the selection of logical channels of Jones in order to bypass the need for an acknowledgement packet, resulting in reliable transmissions and efficient use of bandwidth (Jones, col. 2, lines 7-9).

As to claims 6, 12 and 26, Bloch in view of Forin shows that the link transmitter has a plurality of logical channels (col. 5, lines 7-11). However, Bloch in view of Forin does not show that the link receiver selects to which of the plurality of logical channels to allocate the additional data credits.

Jones shows that when the receiver 12 sends a virtual credit packet 22 for a particular virtual channel, the transmitter 10 knows to which virtual channel the credit packet is designated (col. 3, lines 19-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the network device of Bloch in view of Forin to include the selection of logical channels of Jones in order to bypass the need for an acknowledgement packet, resulting in reliable transmissions and efficient use of bandwidth (Jones, col. 2, lines 7-9).

Claims 15-16, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloch et al. (US 6,922,408 B2; hereinafter Bloch) in view of Forin (US 6,594,701 B1; hereinafter Forin) in further view of Takase et al. (US 6,7023,799 B2; hereinafter Takase) and Jones et al. (U.S. 6,944,173; hereinafter Jones).

As to claims 15 and 29, Bloch in view of Forin in further view of Takase, shows the link transmitter has a plurality of logical channels (col. 5, lines 7-11). However, Bloch in view of Forin in further view of Takase, does not show that the link transmitter selects to which of the plurality of logical channels to allocate the additional data credits.

Jones shows the link transmitter selects to which of the plurality of logical channels to allocate the additional data credits (col. 2, lines 13-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the network device of Bloch in view of Forin in further view of Takase to include the selection of logical channels of Jones in order to bypass the need for an acknowledgement packet, resulting in reliable transmissions and efficient use of bandwidth (Jones, col. 2, lines 7-9).

As to claims 16 and 30, Bloch in view of Forin in further view of Takase, shows that the link transmitter has a plurality of logical channels (col. 5, lines 7-11). However,

Bloch in view of Forin in further view of Takase does not show that the link receiver selects to which of the plurality of logical channels to allocate the additional data credits.

Jones shows that when the receiver 12 sends a virtual credit packet 22 for a particular virtual channel, the transmitter 10 knows to which virtual channel the credit packet is designated (col. 3, lines 19-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the network device of Bloch in view of Forin in further view of Takase to include the selection of logical channels of Jones in order to bypass the need for an acknowledgement packet, resulting in reliable transmissions and efficient use of bandwidth (Jones, col. 2, lines 7-9).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Susnow et al. (US 7,190,667 B2) – note abstract;

Barkey et al. (US 5,825,748) – note abstract;

Bass et al. (US 7,072,299 B2) – note abstract;

Barrack et al. (US 6954424 B2) – note abstract.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Redentor M. Pasia whose telephone number is 571-272-9745. The examiner can normally be reached on M-F 7:30am to 5:00pm EST, alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris H. To can be reached on (571)272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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